## REMARKS

Claims 1 to 45 are presently pending. Claims 7, 10, 22, 25, 31, 37 and 40 have been amended, without prejudice. Claims 38, 41 and 43 have been canceled, without prejudice. Applicants reserve the right to pursue the deleted subject matter in one or more divisional applications prior to issuance of a patent on the instant application.

### Discussion of the § 112, first paragraph rejection

Claims 4, 5, 19, 20, 34 and 35 are generally rejected under 35 U.S.C. § 112, first paragraph, as allegedly lacking enablement. (Action at 3). Applicants respectfully traverse this rejection as the Examiner has not identified the subject matter which is alleged to lack enablement.

### Discussion of the § 112, second paragraph rejections

Claims 4, 5, 19, 20, 34 and 35 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite with regard to the term "pbwa" in claim 4. (Action at 4). The term "pbwa" is defined on page 6, lines 24 to 28 of the specification as the "parts by weight based on the total active components". The term "active components" is defined on page 6, lines 1 to 13 of the specification as "those components which participate in curing of the composition, either directly as a reactant or indirectly as a catalyst, inhibitor or the like", such as a catalyst or an activator. Thus, the term "pbwa" is not indefinite. Accordingly, reconsideration and withdrawal of the present objection is respectfully requested.

Claims 7, 10, 22, 25, 37 and 40 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite as the weight ratio ranges do not specify the denominator ":1". (Action at 4). Claims 7, 10, 22, 25, 37 and 40 have been amended accordingly. In view of such amendments, applicants submit that this rejection is moot.

Claims 1 to 15 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite as the range of values for the variable "n" has been inadvertently deleted. (Action at 5). Applicants have amended claim 1 to insert the previous recitation of the range of values for "n". In view of such amendments, applicants submit that this rejection is moot.

## Summary of the Invention

The independent claims of the present invention comprise claims 1, 16 and 31. Claim 1 is generally directed to an adhesive composition comprising a polymerizable vinyl ester comprising the reaction product of an epoxy compound of formula I and an ethylenically unsaturated group, a substantially styrene-free ethylenically unsaturated monomer reactive with the vinyl ester, a curing catalyst and an activator. Exceptional adhesive results are obtained from the use of the recited polymerizable vinyl ester in the claimed composition. (*See* Specification, page 3, lines 7 to 10).

Claim 16 is generally directed to an adhesive composition comprising a polymerizable vinyl ester of formula II, an ethylenically unsaturated monomer reactive with the vinyl ester, a curing catalyst and an activator. Claim 16 is presently amended to recite that the polymerizable vinyl ester is present in an amount of about 10 wt% to about 30 wt% of the composition and that the ethylenically unsaturated monomer is substantially styrene-free. Exceptional adhesive results are obtained from the use of the recited polymerizable vinyl ester in the claimed composition. (*See* Specification, page 3, lines 7 to 10).

Claim 31 is generally directed to an adhesive composition comprising a polymerizable vinyl ester of formula III, an ethylenically unsaturated monomer reactive with the vinyl ester, a curing catalyst and an activator. Claim 31 is presently amended to recite that the ethylenically unsaturated monomer comprises vinyl toluene and that the polymerizable vinyl ester is present in the composition in amounts of from about 10 wt% to about 30 wt% of the composition. The combination of a substantially styrene-free ethylenically unsaturated monomer and the about 10 wt% to about 30 wt % of polymerizable vinyl ester produces an adhesive composition having unexpectedly superior adhesive performance. (*See* Specification, page 3, lines 10 to 16).

## Summary of the Prior Art

### (a) U.S. Patent No. 6,015,845 to Yonetani et al. ("Yonetani")

Yonetani discloses generally an adhesive composition comprising epoxy acrylate resin such as that produced by the reaction of a bisphenol A epoxide and acrylic acid, a reactive diluent comprising a multifunctional unsaturated ester, a curing agent such as benzoyl peroxide, and an accelerator such as N,N-dihydroxypropyl-p-toluidine. (*See* Col. 2, lines 31 to 63; Col. 3, lines 1 to 48). Yonetani discloses that the resin is present in an amount of 39 wt% to 64 wt%, based on the examples. (*See* Col. 5 to Col. 9). In particular, Yonetani exemplifies adhesive compositions containing the resin in the amount of 39 wt% (Examples 11 to 19), 54 wt% (Examples 4 to 10), 44 wt% (Examples

1 and 3) and 64 wt% (Example 2). *Id.* Yonetani also discloses that the adhesive composition does not contain styrene. (*See* Col. 1, lines 13 to 15; Col. 10, lines 53 to 5%).

### (b) European Patent No. 0199671 to Gebauer et al. ("Gebauer")

Gebauer discloses generally an adhesive composition comprising polymerizable epoxy resin produced by the reaction of a bisphenol A epoxide and methacrylic acid, a reactive thinner selected from styrene or divinyl benzene, a curing agent such as diaryl peroxide, a filler, and a catalyst such as dimethyl-p-toluidine. (*See* abstract; p. 9, Example 1). Gebauer discloses that the resin is present in an amount of about 9 wt% to about 28 wt%; the only exemplified composition in Gebauer contains 12.2% styrene. *Id.*

### (c) Japanese Patent No. 2001-89716 to Seiji et al. ("Seiji")

Seiji discloses generally an adhesive composition comprising a polyfunctional monomer (containing multiple double bonds) such as epoxy acrylate produced from the reaction of bisphenol resin, a monofunctional monomer (containing one double bond), a thermoplastic copolymer soluble in the monofunctional monomer such as styrene and/or methylmethacrylate, an accelerator, and a curing agent. (*See* [0012]). Seiji discloses the use of the epoxy acrylate in an amount of 10 wt% to 94 wt %. (*See* [0019]). The epoxy acrylates disclosed are produced by the reaction of bisphenol A epoxides. (*See* [0021]-[0022]).

### (d) U.S. Patent No. 4,729,696 to Goto et al. ("Goto)

Goto discloses generally a two chamber cartridge containing an adhesive composition comprising an epoxy resin such as bisphenol A epoxide, an organic acid such as acrylic acid, a curing agent such as benzoyl peroxide, an optional accelerator such as dimethyl-p-toluidine, and an optional reactive monomer such as styrene or vinyl toluene. (*See* Col. 5, lines 30 to 68; Col. 6, lines 1 to 37). Goto discloses that the epoxy resin is present an amount of 39.6 wt % to 86 wt %. (*See* Col. 7, lines 20 to 28).

### (e) U.S. Patent No. 5,891,942 to Parish et al. ("Parish")

Parish discloses generally a sprayable coating composition comprising a resin system which consists of a resin such as bisphenol and a reactive diluent such as styrene or vinyl toluene, a multifunctional acrylate, a monofunctional acrylate, an accelerator and a curing agent. Parish discloses that the mono and multifunctional acrylates also serve as reactive diluents whereby they react with the resin. (*See* Col. 4, lines 8 to 13). Accordingly, the resin is reacting with the styrene or vinyl toluene, the monofunctional acrylate, and the multifunctional acrylate at the same time. Parish discloses that the use of vinyl toluene instead of styrene is preferred. (*See* Col. 3, lines 35 to 38).

## Discussion of the Anticipatory Rejections

Claims 1, 2, 4, 5, 7, 10, 16, 17, 19, 20, 22, 25, 31, 32, 34, 35, 37 and 40 are rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by Yonetani. (Action at 5). Independent claims 1, 16 and 31 are not anticipated by Yonetani as Yonetani does not teach each and every element of the claimed invention. Yonetani at least does not teach the polymerizable vinyl ester of independent claims 1 and 16. In particular, Yonetani does not teach at least the $R_x$-Ar-$R_x$ portion of the polymerizable vinyl ester produced by the reaction of a compound of formula I or II as recited in claims 1 and 16, respectively. Further, Yonetani does not teach the ethylenically unsaturated monomer comprising vinyl toluene of independent claim 31. Yonetani teaches the use of a multifunctional ester, not vinyl toluene. Accordingly, independent claims 1, 16 and 31 and claims dependant therefrom are not anticipated by Yonetani for at least the above-detailed reasons.

Claims 16 to 20, 22, 25, 31 to 35, 37 and 40 are rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by European Patent No. 0199671 to Gebauer et al. ("Gebauer"). (Action at 6). Independent claims 16 and 31 are not anticipated by Gebauer as Gebauer does not teach each and every element of the claimed invention. Gebauer at least does not teach the polymerizable vinyl ester of independent claim 16. In particular, Gebauer does not teach at least the $R_x$-Ar-$R_x$ portion of the polymerizable vinyl ester produced by the reaction of a compound of formula II as recited in claim 16. Further, Gebauer does not teach the ethylenically unsaturated monomer comprising vinyl toluene of independent claim 31. Gebauer teaches the use of styrene or divinyl benzene, not vinyl toluene. Accordingly, independent claims 16 and 31 and claims dependant therefrom are not anticipated by Gebauer for at least the above-detailed reasons.

Claims 16 to 20, 22, 25, 31 to 35, 37 and 40 are rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by Japanese Patent No. 2001-89716 to Seiji et al. ("Seiji"). (Action at 6). Independent claims 16 and 31 are not anticipated by Seiji as Seiji does not teach each and every element of the claimed invention. Seiji does not teach the polymerizable vinyl ester of independent claim 16. In particular, Seiji does not teach at least the $R_x$-Ar-$R_x$ portion of the polymerizable vinyl ester produced by the reaction of a compound of formula II as recited in claim 16. Further, Seiji does not teach the ethylenically unsaturated monomer comprising vinyl toluene of independent claim 31. Seiji teaches the use of styrene or methylmethacrylate, not vinyl toluene. Accordingly, independent claims 16 and 31 and claims dependant therefrom are not anticipated by Seiji for at least the above-detailed reasons.

Claims 16, 22, 31 and 37 are rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 4,729,696 to Goto et al. ("Goto). (Action at 7). Independent claims 16 and 31 are not anticipated by Goto as Goto does not teach each and every element of the claimed invention. Goto does not teach the polymerizable vinyl ester of independent claim 16. In particular, Goto does not teach at least the $R_x$-Ar-$R_x$ portion of the polymerizable vinyl ester produced by the reaction of a compound of formula II as recited in claim 16. Further, Goto does not teach the polymerizable vinyl ester wt % recited in claim 31. Goto discloses compositions containing 39.6 wt % to 86 wt % vinyl ester. Accordingly, independent claims 16 and 31 and claims dependant therefrom are not anticipated by Goto for at least the above-detailed reasons.

## Discussion of the Obviousness Rejections

Claims 13 to 15, 28 to 30 and 42 to 45 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Yonetani, Gebauer or Seiji, individually, as such publications each disclose adhesives which "inherently exhibit a pull out performance within the claimed boundaries". (Action at 7). Independent claims 1, 16 and 31 are patentable over Yonetani, Gebauer or Seiji, individually, as such publications do not teach or suggest the presently claimed invention and there is no motivation to modify such publications. As detailed above, Yonetani, Gebauer and Seiji do not teach the polymerizable vinyl ester of independent claims 1 or 16, or the ethylenically unsaturated monomer comprising vinyl toluene of independent claim 31. Yonetani, Gebauer and Seiji each also do not provide any suggestion to modify the components of the compositions disclosed therein.

The Examiner does not identify any motivation or suggestion for one of ordinary skill in the art to modify any of such publications so as to obtain the presently claimed polymerizable vinyl ester or ethylenically unsaturated monomer comprising vinyl toluene. The Examiner has also not provided any rationale for why the adhesive compositions of Yonetani, Gebauer and Seiji allegedly inherently exhibit the pull-out performance values of the rejected claims, especially in view of the lack of pull-out performance testing of the disclosed compositions in such publications. Indeed, the Patent Office has the burden of presenting ***factual evidence*** that would indicate that the claimed methods are *prima facie* obvious. *In re Lunsford*, 148 U.S.P.Q. 721 (C.C.P.A. 1966). In the absence of such a showing, such a rejection is based upon impermissible hindsight reconstruction. *In re Fritch*, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992) ("it is impermissible for an Examiner, in proffering a 35 U.S.C. § 103 rejection, to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art to render the claimed invention obvious."). Accordingly, independent claims 1, 16 and 31 and claims dependant therefrom are patentable over Yonetani, Gebauer or Seiji for at least the above-detailed reasons.

Claims 1, 4, 6 to 16, 19, 21 to 31 and 34 to 35 are rejected under 35 U.S.C. § 103(a) as allegedly patentable over the combination of Goto and Parish. (Action at 8).

Applicants respectfully traverse this rejection as there is no motivation for one of ordinary skill in the art to make such a combination. Further, assuming *arguendo* that such a combination can be made (***which it can not***), independent claims 1, 16 and 31 are patentable over the combination of Goto and Parish as such combination does not produce the presently claimed invention.

Applicants respectfully submit that there is no motivation for one of ordinary skill in the art to combine Goto and Parish. Goto is directed to an ***adhesive*** composition whereas Parish is directed to a ***coating*** composition. The Examiner implies that Parish can be considered an adhesive similar to that claimed as the composition of Parish exhibits sufficient adhesion and contains similar components. (Action at 9). One of ordinary skill in the art, however, would not look to a publication disclosing a coating composition with minimal adhesion, such as Parish, in order to produce an adhesive capable of anchoring materials in or to concrete or masonry. Further, one of ordinary skill in the art would not look to Parish because the components of Parish and Goto are dissimilar.

Although both Goto and Parish use a reactive diluent, a curing agent, and an accelerator, the polymers used therein vary greatly. Goto produces a vinyl ester from the reaction of an epoxy resin with an organic acid, and then reacts such ester with additional components to form an adhesive. Parish, however, reacts an epoxy resin with styrene or vinyl toluene, multifunctional acrylates, and monofunctional acrylates all at the same time to form a coating. Whereas the composition in Goto is based on the vinyl ester, the composition in Parish only incidentally forms a vinyl ester, if at all. Accordingly, independent claims 1, 16 and 31 and claims dependant therefrom are at least patentable as there is no motivation for one of ordinary skill in the art to combine Goto and Parish.

Further, assuming *arguendo* that the combination of Goto and Parish can be made (***which it can not***), such combination does not produce the presently claimed invention. Goto does not teach the polymerizable vinyl ester of independent claims 1 and 16, or the polymerizable vinyl ester wt % of independent claim 31. Parish is only cited for the addition to Goto of an accelerator such as N, N'-dimethyl-p-toluidine. (Action at 8). Parish does not provide the polymerizable vinyl ester of independent claims 1 and 16, or the polymerizable vinyl ester wt % of independent claim 31. Thus the combination of Goto and Parish does not produce the presently claimed invention. Accordingly, independent claims 1, 16 and 31 and claims dependant therefrom are patentable over the combination of Goto and Parish for at least the above-detailed reasons.

Claims 6, 8, 9, 11, 12, 21, 23, 24, 26, 27, 36, 38, 39, 41 and 42 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the combination of Yonetani and Gebauer, and further in view of Goto and Parish. (Action at 9). Applicants respectfully traverse this rejection as there is no motivation for one of ordinary skill in the art to make such combinations. Further, assuming *arguendo* that such combinations can be made (***which they can not***), independent claims 1, 16 and 31 are patentable over the combination of Yonetani and Gebauer and Yonetani, Gebauer, Goto and Parish as such combinations do not produce the presently claimed invention.

Applicants respectfully submit that there is no motivation for one of ordinary skill in the art to combine Yonetani and Gebauer or Yonetani, Gebauer, Goto and Parish.

The Examiner does not identify any motivation or suggestion, as he must, for one of ordinary skill in the art to modify Yonetani, Gebauer, Goto or Parish so as to obtain the presently claimed polymerizable vinyl ester of claims 1 and 16 or the ethylenically unsaturated monomer comprising vinyl toluene of claim 31. Further, the coating composition of Parish is not combinable with the adhesive compositions of Yonetani, Gebauer or Goto for at least the above-detailed rationale. Accordingly, independent claims 1, 16 and 31 and claims dependant therefrom are at least patentable as there is no motivation for one of ordinary skill in the art to combine Yonetani and Gebauer or Yonetani, Gebauer, Goto and Parish.

Further, assuming *arguendo* that the combinations of Yonetani and Gebauer or Yonetani, Gebauer, Goto and Parish can be made (***which they can not***), such combinations do not produce the presently claimed invention. As detailed above, Yonetani, Gebauer and Goto do not teach the polymerizable vinyl ester of claims 1 and 16. Yonetani and Gebauer also do not teach the ethylenically unsaturated monomer comprising vinyl toluene of claim 31. Goto also does not teach the polymerizable vinyl ester wt % of independent claim 31. Parish does not provide the polymerizable vinyl ester of independent claims 1 and 16, or the polymerizable vinyl ester wt % of independent claim 31.

Thus, the combination of Yonetani and Gebauer does not produce the polymerizable vinyl ester of independent claims 1 and 16, or the ethylenically unsaturated monomer comprising vinyl toluene of claim 31. Further, the combination of Yonetani, Gebauer, Goto and Parish does not produce the polymerizable vinyl ester of independent claims 1 and 16, or the polymerizable vinyl ester wt % of independent claim 31. Accordingly, independent claims 1, 16 and 31 and claims dependant therefrom are patentable over the combinations of Yonetani and Gebauer or Yonetani, Gebauer, Goto and Parish for at least the above-detailed reasons.

## Discussion of the Double Patenting Rejection

Claims 1 to 45 are provisionally rejected as allegedly unpatentable under the doctrine of non-statutory obviousness-type double-patenting in view of claims 1 to 49 of co-pending U.S. Application Serial No. 10/679,871. (Action at 2 to 3). Applicants request deferral of this rejection pending some indication of allowable subject matter, at which time the filing of a terminal disclaimed may be considered.

## Conclusion

Applicants submit respectfully that this application is now in condition for allowance. Accordingly, an indication of allowability and an early Notice of Allowance are respectfully requested.

No fee for this response is required, nevertheless, the Commissioner is authorized hereby to charge any fees or credit any overpayment associated with this Reply (copy enclosed) to Deposit Account Number 19-5425.

Respectfully submitted,

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Joseph F. Posillico, ~~Esq.~~
Reg. No. 32,290

Synnestvedt & Lechner LLP
2600 Aramark Tower
1101 Market Street
Philadelphia, PA 19107
Telephone: (215) 923-4466
Facsimile: (215) 923-2189